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ABSTRACT

This executive summary and six additional volumes comprise a report which presents the results of an evaluation of selected sexuality education programs, and provides materials to help others implement and evaluate more successful approaches. The report is designed for policymakers, educators, and evaluators. The executive summary contains an overview of the entire report, an overview of volume one on sexuality education, an explanation of the background and overall design of the research, a description of the nine programs selected for evaluation, a discussion of methods used to evaluate the programs, a summary and discussion of results, and conclusions. Overall, this evaluation indicates that both short- and long-term sexuality education programs can increase knowledge, that comprehensive programs may have a small impact on values clarification, that certain parent-child programs can succeed in increasing parent-child communication, and that an education/clinic combination can dramatically succeed in reducing unintended teenage pregnancy. References are included. (NB)

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SEXUALITY EDUCATION:

An Evaluation of Programs and Their Effects

An Executive Summary

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Sexuality Education:

An Evaluation of Programs and Their Effects

An Executive Summary

Developed at Mathtech, Inc.
by Douglas Kirby, PhD

Network Publications, Santa Cruz, 1984

Final report to the U.S. Department of Health and Human Services,
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This evaluation was a cooperative effort involving innumerable sexuality educators, administrators, researchers, and teenagers. Their willingness to share their knowledge, materials, and data have greatly enhanced the comprehensiveness and validity of this analysis. The efforts of several individuals and groups should be emphasized.

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Many people at each of the program sites contributed to this project. Most important they agreed to have their programs evaluated by outside researchers. More specifically, people at the sites allowed us to observe and critique their programs, implemented many of our suggestions for improving their programs, helped us develop and revise questionnaires, administered questionnaires to many of their students or participants, rearranged their program schedules so that our quasi-experimental designs and sampling requirements could be better met, wrote numerous reports including detailed descriptions of their programs, and reviewed my evaluations of their program.

I am also indebted to the thousands of teenagers who voluntarily participated in this evaluation. They completed many questionnaires carefully and honestly.

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Several additional people helped produce this summary and the entire volume on which it is based. My father, Bernard Kirby, carefully edited the complete volume. Jesse Blatt, Bob Selverstone, Judy Senderowitz, individuals from each site, and other people in the field also reviewed it. Ann Cook then significantly improved this summary, while Pam Wilson also contributed many useful suggestions.

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My sincere thanks to everyone who helped.

Douglas Kirby

EXECUTIVE SUMMARY

An Overview of This Report

The volumes in this report present the results of an evaluation of selected sexuality education programs, and provide materials to help others implement and evaluate the more successful approaches. The report is designed for policy makers, educators, and evaluators.

Summary of Methods

We selected a variety of different types of sexuality education programs offered by nine different organizations (sites). We then evaluated the impact of the programs upon participants' knowledge, attitudes, comfort, skills, and behavior.

To measure the impact of the programs, we administered questionnaires before, immediately after, and again several months after each program. Whenever possible, we also administered questionnaires to comparable control groups. In addition, we also obtained participants' and parents' assessments both of the programs and of their impact upon the participants. Finally, we also obtained pregnancy or birth data from clinics at four of the sites.

Summary of Findings

The data we collected support several major findings:

- Most participants and their parents thought that the programs were excellent and that the programs had a positive impact upon the participants.
- Most programs increased knowledge.
- Most non-clinic programs had no statistically significant impact upon participants' other attitudes, comfort, skills, or communication.
- However, a few of the more comprehensive programs increased the clarity of participants' values. The more comprehensive programs may also have prevented participants from becoming more permissive in their attitudes toward premarital sexual intercourse.
- Moreover, the parent/child program for parents and their children together increased their communication about sexuality both during and after the program.
- No program significantly increased or decreased reported sexual intercourse. None of the non-clinic programs had a significant impact upon reported use of different methods of birth control. At the three

non-clinic sites where we measured pregnancy rates, none of the programs had a measurable impact upon pregnancy.

- The high school education and health clinic combination substantially reduced births; after implementation of the program, fertility rates declined by about half.

In sum the data suggest that sexuality education programs have positive effects, but that education programs alone do not substantially reduce unintended adolescent pregnancies. However, education/clinic combinations can reduce pregnancies and births.

The Organization of This Report

The complete report contains several separate volumes and this Executive Summary which summarizes the first volume. Although all of the volumes are an integrated package which we hope will meet many varied needs of educators, evaluators, and policy makers, some of the volumes will have particular interest for selected groups of people, and each volume is complete and can be used independently of the others.

The first volume, Sexuality Education: An Evaluation of Programs and Their Effects, summarizes the structure and content of sexuality education in the United States, reviews the literature on the effects of sexuality education, describes the evaluation methods, provides a description of and the evaluation data for each program, and summarizes the effectiveness of different approaches in meeting different goals.

The second volume, Sexuality Education: A Guide to Developing and Implementing Programs, provides suggestions for developing and implementing effective educational and clinic-based approaches to sexuality education. It discusses the reasons for and nature of responsible sexuality education and describes approaches to building a community-based program, selecting teachers and finding training, assessing needs of the target population, and designing and implementing programs for them. It also provides suggestions for evaluating programs.

The third volume, Sexuality Education: A Curriculum for Adolescents, is based upon the curricula of the most comprehensive programs. These programs increased knowledge and helped clarify values. The curriculum consists of the following units: Introduction to Sexuality, Communication Skills, Anatomy and Physiology, Values, Self Esteem, Decisionmaking, Adolescent Relationships, Adolescent Pregnancy and Parenting, Pregnancy Prevention, Sexually Transmitted Diseases, and Review and Evaluation. Each unit contains a statement of goals and objectives, an overview of the unit contents, several activities that address the goals and objectives, and wherever needed, lecture notes and handouts.

The fourth volume, Sexuality Education: A Curriculum for Parent/Child Programs, is based upon the parent/child program which increased knowledge and parent/child communication. The curriculum includes several suggested course outlines and the following units: Introduction to Course; Anatomy, Physiology, and Maturation; Gender Roles; Sexually Transmitted Diseases; Reproduction;

Adolescent Sexuality; Birth Control; Parenting; and Review. Each unit contains several activities and, wherever necessary, lecture notes and handouts.

The fifth volume, Sexuality Education: A Handbook for Evaluating Programs, is based upon the methods we used and our experiences in evaluating these programs. It discusses the need for evaluation of sexuality education programs; selection of program characteristics and outcomes to be measured; experimental designs; survey methods; questionnaire design; and procedures for administering questionnaires, analyzing data, and using existing data.

A sixth volume, Sexuality Education: An Annotated Guide for Resource Materials, reviews books, films, filmstrips, curricula, charts, models, and games for youth in elementary school through high school. For each resource, the guide lists the distributor, length, cost, and recommended grade level, and provides a discussion of the material. This volume differs from the others in that it was not funded by the government and is not part of the final report. However, it will be useful to people developing programs.

An Overview of Sexuality Education

The Need for Sexuality Education

Young people have numerous problems relating to their sexuality. A prominent problem is unintended pregnancy:

- More than one-third of all girls become pregnant before they become 20.
- Each year about 1.1 million girls between the ages of 10 and 19 become pregnant.
- Each year more than 500,000 teenagers give birth, shorten their schooling, and restrict their career opportunities.
- Each year more than 400,000 teenage girls terminate their pregnancies through abortion.

Although unintended pregnancy is a dramatic problem, other subtle problems related to adolescent sexual activity are more common and sometimes more enduring. Many adolescents:

- feel anxiety about their changing bodies and relationships with their families and friends,
- feel vulnerable and succumb to peer pressure or exploitation,
- want accurate information and advice, but feel uncomfortable asking their parents or other adults,
- engage in different types of sexual activity and then experience dissatisfaction and guilt,
- contract a sexually transmitted disease.

These and other problems have immediate negative effects; some also reduce sexual enjoyment and closeness in adult life and add stress to marriage.

Sexuality education in the schools has been viewed by many as a partial solution to some of these problems.

Goals of Sexuality Education

Educators initially tried to change behavior by replacing ignorance with correct information. However, they soon realized that young people not only needed correct factual information; they also needed clearer insight into themselves, their beliefs, and their values. Educators also recognized that many of the behavior goals of programs also required many skills that many young people lacked.

Consequently, the goals of sexuality educators now include changes in knowledge, attitudes, skills, and behavior. A sampling of typical goals follows:

- to increase accurate knowledge about sexuality and to counteract inaccurate or misleading messages from peers and the media
- to facilitate insights into personal social and sexual behavior
- to reduce anxieties and fears about personal sexual development and feelings
- to increase understanding of family values and religious and societal values and to help adolescents clarify and behave consistently with their own sexual values
- to improve decisionmaking skills and to make decisionmaking more responsible
- to increase communication skills in order to increase the amount, effectiveness, and comfort of communication about sexuality with parents, friends, and significant others
- to reduce sexual exploitation and unwanted, irresponsible, or self destructive sexual activity
- to encourage abstinence until young people are older and better prepared for sexual activity, and to then reduce unprotected intercourse and unintended pregnancies
- to reduce sexually transmitted disease
- to enhance self esteem and interpersonal relationships.

Although some sexuality educators might differ with one or more of these goals, most of these goals have become increasingly prevalent and increasingly accepted in both school and nonschool programs. Shorter programs are more likely to focus upon only a few; more comprehensive programs cover more of them.

Most of these goals have an important characteristic -- they are incredibly broad and difficult to achieve.

Providers of Sexuality Education

For years the major providers of sexuality education have been those organizations primarily involved with educating youth (schools) and those organizations primarily involved with helping adolescents prevent or deal with pregnancies (family planning clinics). That is undoubtedly still true. Schools provide by far the most sexuality education and Planned Parenthood and other family planning agencies provide the second greatest amount.

However, there have been a few changes. Whereas high schools used to provide nearly all of the school programs, increasingly junior high schools and even elementary schools now offer programs. In 1982 an Urban Institute survey of 179 metropolitan area school districts revealed that 75 percent of the school districts offered sexuality education in their high schools, 75 percent in junior high school and two thirds in elementary school (Sonenstein and Pittman, 1982). The programs are, of course, modified appropriately for the younger ages.

Second, a larger number and wider variety of youth-serving organizations now offer sexuality education. For example, the YWCA, Girls Clubs, Salvation Army, Boys Clubs, and many churches -- both liberal and conservative -- are either offering or developing programs.

Popular Organizational Structures

Short programs. Most programs in this country are relatively short. According to the Urban Institute survey, about 48 percent last 10 hours or less and another 39 percent last 11 to 40 hours (Sonenstein and Pittman, 1982). These short courses may cover superficially a variety of topics, but they tend to focus on the basics: anatomy and physiology, changes during puberty, decisionmaking about dating and sexual behavior, the consequences of sexual activity and parenthood, birth control, and sexually transmitted disease. Some of these topics may be omitted, depending upon the grade level of the students.

The small number of sessions makes it easier for schools to fit the instruction into other courses such as health, and for nonschool organizations to maintain attendance at their programs.

Comprehensive programs. A few schools offer comprehensive, semester-long programs. According to Sonenstein and Pittman (1982), about 14 percent of school districts offered courses lasting longer than 40 hours in 1982, and 16 percent of high schools offered separate courses in sexuality education. However, in school districts with comprehensive sexuality education, not all of the schools actually offer such programs. Moreover, even in schools with comprehensive courses, not all of the students take the courses. Thus, these studies suggest that fewer than 10 percent of all students take comprehensive courses.

Comprehensive programs obviously require a considerable amount of time and very well trained educators. Such programs cover the basic topics in much greater depth and cover a wider variety of topics. Comprehensive programs typically include cognitive, affective, and skill components, and rely more upon group discussions and role-playing. They devote time to clarifying values, increasing decisionmaking and communication skills, improving self esteem, and making behavior more responsible.

Conferences. Some nonschool organizations and even a few schools find it easier to provide the content of a short program in a single day, instead of dividing it over several days. Some groups use the same curriculum in both their short multi-session programs and in their conferences. Other groups bring together a larger number of students in a meeting hall, and then bring in more expensive outside resources (e.g., well known personalities or acting groups).

Peer education. These programs give selected youth leaders or students in the school about 30 hours of instruction on both sexuality and educating and counseling others. These "educators" in turn talk with their peers in the school, answer questions when stopped in the hallways or elsewhere, refer students who need help to other resources, and occasionally give presentations to school classes or other youth organizations.

Parent/child programs. Educators are increasingly trying to help parents communicate their beliefs and values to their children. Some groups bring parents and their children together for about six evening sessions. During such courses, the instructors provide accurate information to both parents and children, suggest techniques for better communication outside the classroom, and also facilitate a variety of activities in the classroom involving parents with their own or other children.

Education/clinic programs. A few schools are providing both education in the school classroom, and health and contraceptive services in a school clinic. In such programs the clinic staff lecture in the classrooms, counsel students in the clinic, conduct gynecological exams for those students needing medical methods of contraception, make referrals to a hospital teen clinic for prescriptions, and then do follow-up checkups and counseling with the students back in school. This approach has substantially reduced pregnancies.

Topics

Although no one has systematically examined the sexuality education curricula of elementary schools, many educators have commented that very few elementary schools cover sexuality education in the earlier grades. However, those that do, typically focus upon the correct names for body parts, reproduction in animals, family roles and responsibilities, basic social skills, and self esteem. In the fifth or sixth grades, many schools provide sessions on the physical and emotional changes during puberty. Very few schools cover social interaction with the opposite sex (e.g., dating or intercourse).

In junior high school an increasing number of schools cover anatomy, the physical and psychological changes of puberty, reproduction, dating, going together, responsibilities in interpersonal relations, and sexually transmitted disease. A smaller, but increasing number, also cover contraception, especially if there are many sexually active and pregnant adolescents in the school.

High school programs, especially comprehensive ones, include a wide array of topics. The vast majority of separate courses cover anatomy and physiology, changes at puberty, dating, teenage pregnancy, pregnancy and childbirth, and sexually transmitted disease (Orr, 1982). About three-fourths of separate courses cover family planning, contraceptive methods, and abortion. About half include masturbation and homosexuality. In contrast, very few programs cover sexual techniques.

Values in Sexuality Education

In the past, some sex educators attempted to teach sexuality education in a value free manner in order to avoid offending people with different values. Most educators now emphasize basic values in our society that are almost universal. For example: "All people should be treated with respect and dignity." "People should carefully consider the current and future consequences for themselves, others, and society before making important decisions." "No one should use either subtle pressure or physical force to get someone else to engage in unwanted sexual activity." "Both sexes should act responsibly to prevent unwanted pregnancy."

Program Activities

As educators have broadened their goals, they have also developed a wider variety of educational techniques. In the more comprehensive programs, teachers lecture, lead large group discussions, break the class into small group discussions, have students practice communication skills in dyads, facilitate brainstorming, set up role playing situations, show films and filmstrips, invite guest speakers, and provide structured written exercises which require participants to rank order their priorities, analyze the advantages or disadvantages of different actions, solve dilemmas.

Of course, shorter courses cannot employ all of these experiential activities. In a national study of sexuality education courses, Orr (1982) found that 87 percent of the high school teachers lectured, 85 percent used group discussions, 80 percent led question and answer sessions, 72 percent showed media, 46 percent used small group discussions. Only 6 percent used only one method, primarily lectures.

Ten years ago there were relatively few films, textbooks, or other materials for sexuality education. However, this has changed dramatically. There are now more than one hundred books and innumerable pamphlets dealing with important aspects of sexuality -- materials ranging in perspective from very conservative to very liberal.

There are more than two hundred films and a greater number of filmstrips. Students can watch on film other teenagers struggle with a variety of difficult questions: whether to date someone older, whether to have sex, what to do when pregnant. Students can view actual photography of an egg moving down the fallopian tube; they can see diagrams of the correct methods of using birth control; they can observe the effects of sexually transmitted disease. These films both engage and inform viewers.

There are also various anatomical models with varying degrees of realism. Students can study three dimensional models of the developing fetus, examine a human torso with removable parts, or check for cancerous cysts in a life-like female breast. There are charts for the menstrual cycle, charts showing fetal development, flip charts for different methods of birth control, guides to sexually transmitted disease. Finally, there are activities and games to dispel sexual myths, to help clarify values, to facilitate communication with parents or peers, and to model the experience of parenting a small child.

In fact, there are more than one hundred different groups continually producing new and updated materials. With such a large number of materials, the problem has shifted from searching for non-existing materials to keeping up with the latest materials and selecting the best. Consequently, educators have written numerous bibliographic guides to resource materials. Newsletters and journals also review the latest resources every quarter.

Teacher Characteristics

According to Orr (1982), 56 percent of high school sexuality education teachers in 1977 were male and slightly older (with a mean age of 38) than other teachers (36). Almost half had teaching credentials in physical education; others had credentials in home economics, science, and social studies. Because these figures probably did not include the many people from Planned Parenthood or other youth agencies that give presentations in schools, they may be somewhat misleading. For example, the people from agencies are more likely to be female.

No major study has analyzed changes in sexuality educators. However, numerous educators have observed that their colleagues are becoming more conscious of the very practical problems associated with adolescent sexual behavior. Moreover, as more schools have developed programs, and as communities have played a greater role in developing those programs, sexuality educators seem to have become more moderate or conservative, and to more closely mirror their communities.

Many sexuality educators have also become increasingly professional. They attend more professional meetings; they receive better training at workshops; they read more of the expanding literature; they apply the expanding body of knowledge and research to their courses; they ask thoughtful and sometimes critical questions about sexuality education; and they apply relevant theories from other fields.

However, as the number of sexuality courses expands, new teachers continually join the field. Initially many of them are not well trained, and they need training, curricula, and other materials. During the last few years there has been substantial growth in training for sexuality educators. More organizations have offered training, have trained more teachers and other school professionals, and have improved the professional quality of the training.

Amount of Sexuality Education in Schools

In 1976, Zelnik (1979) conducted a large and excellent study of American teenagers aged 15 - 19. That study indicated that 67 percent had received some sexuality education instruction in school and that 49 percent had received instruction on contraception.

Two years later, Gallup (1978) reported that only 43 percent of 13 - 18 year old teenagers had had some sexuality education in school; 31 percent had had instruction which included contraception.

A year later in 1979 Zelnik and Kim (1982) completed another study of teenagers that focused upon females aged 15 - 19 and males aged 17 - 21, all from metropolitan areas. It revealed that 77 percent had taken a course related to sexuality education.

These percentages vary somewhat, partly because some of the studies are based upon slightly younger populations who are less likely to have had sexuality education, and others upon older populations more likely to have had sexuality education. In general, the studies indicate that between 60 and 75 percent of students receive at least a small amount of sexuality education by the time they graduate from high school. However, these figures do not provide information on the comprehensiveness or other characteristics of these programs.

As noted above, the Urban Institute study of 179 school districts in metropolitan areas found that 80 percent of the school districts offered sexuality education in one or more schools, 75 percent in high school, 75 percent in junior high school, and two-thirds in elementary (Sonenstein and Pittman, 1982). About 25 to 35 percent of these programs were developed between 1976 and 1982. In districts that offered instruction, 76 percent of the students in the junior and senior high schools actually received the instruction.

Community Involvement in Developing Programs

In years past, many sexuality education programs were developed without substantial community input. Health education teachers or other teachers sometimes taught a small unit on sexuality after obtaining the approval of the principal, but without building a broad base of community support. Sometimes these teachers would teach the unit themselves; other times they would have someone from a family planning clinic or youth agency teach in the classroom for several periods.

Although this process helped provide needed instruction to many adolescents, it nevertheless often made expansion of the program more difficult. Efforts to expand such programs sometimes mobilized people who were opposed to the program rather than those who supported it. Occasionally, this process led to an active opposition, and without a broad base of support, the program collapsed.

Currently there is much greater emphasis placed upon involving the parents and community from the very beginning, and having them play a major role in designing the program's goals, structure, and basic curriculum. Often when a community implements a modest program and finds it successful, the community then makes the program more comprehensive. This process is demonstrated by Orr (1982), who found that when parents are involved in development, the resulting programs include both more topics and more controversial topics.

There are at least three reasons for the increasing involvement of parents and community in developing programs:

- Sexuality educators increasingly recognize that parents and the community have a right to be involved in the development.

- Educators increasingly want to enhance the role of parents in educating their children, and having parents involved in the development of the program may facilitate that parent role.
- This process works -- that is, it has led to the successful development of many programs.

Support for Sexuality Education

In most communities sexuality education programs are developed with the support of the community and without opposition. However, everyone has read of those few communities in which sexuality education is very controversial and becomes the source of considerable community conflict.

Sexuality educators have realized over the last decade that a fair number of people raise legitimate concerns and that these concerns should be seriously considered and resolved when developing and implementing programs. At the same time, a variety of national studies and other evidence have demonstrated that those people who are opposed to any type of sexuality education represent a very small, although sometimes vocal, minority.

The Gallup Poll has asked U.S. adults for almost 40 years if they approve or disapprove of sexuality education in public schools. In 1943, the first year they asked, nearly 70 percent approved of such courses. In 1977, the support had risen to 77 percent (Gallup, 1980). Eighty percent of adults felt sexuality education should be offered with parental consent (Gallup, 1980). In a September 1981 poll, 79 percent of parents favored sexuality education while only 17% opposed it. Among nonparents, 66 percent favored it.

The National Opinion Research Center (NORC) at the University of Chicago conducted several national studies between 1970 and 1977. In 1970, 56 percent favored sexuality education in public schools; in 1977, 77 percent favored sexuality education (Smith, 1980).

Finally, in a national poll conducted by the National Broadcasting Company reported on the Today Show (October 8, 1981) 75 percent of adults said they approve of sexuality education; 67 percent believe sexuality education provides a healthy view of sexuality; and only 12 percent believe instruction increases sexual activity.

In sum, different organizations in different polls in different years have consistently shown that a substantial majority of the American public do support sexuality education in schools.

Even though most adults favor sexuality education in general, they may not necessarily support the inclusion of topics as controversial as contraception. When the Gallup Poll asked whether contraceptive information should be discussed in the classroom, 70 percent of adults agreed that it should be offered (Gallup Poll, 1978). NORC asked a similar question, and found in 1974 that 78 percent believed it should be offered; in 1977, 82 percent (Smith, 1980).

A different kind of evidence for support comes from parents. Many programs require either parental notification or parental consent for their

children's participation in a program. Parents may request for their children to be placed in a different classroom and given alternative instruction while the sexuality education material is being covered. No one has systematically sampled school districts to determine the exact percentage of parents that so request. However, innumerable school districts have reported informally that fewer than two percent of the parents request the alternative class.

Such reports are also consistent with the surveys conducted of parents whose children have completed the program. Overwhelming majorities of the parents favor the program and believe it has helped their children (Cooper, 1982).

As one might expect, adolescents strongly support sexuality education in school. Norman and Harris (1981) surveyed about 160,000 teenagers. Although the sample was not random, the responses of these teenagers are probably indicative of most teenagers. Of those teenagers who had taken sexuality education, 42 percent thought it was helpful, while 58 percent thought it needed improvement: it did not cover enough, the teacher was too embarrassed, or the course didn't "cover it straight." The vast majority of the teenagers wanted more information. More specifically, they wanted information earlier (including in elementary school); they wanted more information on the emotional aspects of sex, not just on the biological aspects; and they wanted coed classes with group discussions between the sexes. In that and other studies, teenagers rarely express the view that sexuality education should not be covered in school.

The increasing support for providing sexuality education in the schools is also demonstrated in the political process. State guidelines for sexuality education have gradually become more supportive. Maryland, New Jersey, and the District of Columbia now require sexuality education in schools. Twenty-three other state boards of education encourage local school districts to offer sexuality education. Other states leave the decision to offer sexuality education to the local school boards. Only seven states discourage and one state prohibits instruction on specific topics (Kirby and Scales, 1981). Twelve states and the District of Columbia specifically recommend that contraception be taught; only four states discourage teaching contraception (Kirby and Scales, 1981).

Finally, when sexuality education does become a source of conflict within communities, the programs are often improved. According to a national study of school superintendents (Hottois and Milner, 1975), only five percent of existing programs were eliminated following controversy, but more than 50 percent were expanded.

In sum, sexuality education does appear to have the overwhelming support of the American public. That support continues to grow, and it is manifested in the political process.

Effects of Sexuality Education -- A Review of the Literature

Methods used in previous studies. The most common method of analyzing the effects of sex education programs utilized an experimental or quasi-experimental design. The sex education class was considered the

experimental group and some other class or group of students was considered the control group. These studies can better demonstrate the causal impact of programs than surveys.

A second, but less common method of analyzing the effects of sex education programs employed survey methods. Unfortunately these surveys could not easily control for all other confounding factors such as normal maturation processes, and thus could not demonstrate causality. Moreover, some surveys did not ask a sufficient number of questions about the sexuality education course for the researcher to know how much sexuality education was actually taught. On the other hand, the large surveys summarized here were based upon random samples of youth throughout the country and give a more general picture of sexuality education throughout the country.

Impact upon knowledge. Despite frequent criticism, schools have demonstrated their ability to effectively increase the knowledge of most students. Thus, one would expect that sex education classes, like other classes, would improve the knowledge of the participants. This expectation is supported by the empirical literature.

Numerous studies of high school classes have measured the impact of sex education courses upon the knowledge of the students and their findings are nearly unanimous--instruction in sex education does increase knowledge of sexuality. In some cases, the increase in knowledge was quite small; in other cases, quite large. Moreover, these studies also indicate that in general, courses can effectively teach almost any appropriate sexual topic. Thus, there appears to be nothing exceptional about sexual material that prohibits students from learning factual material and gaining insight.

Most of these studies employed an experimental design. Thus, their evidence appears quite persuasive. However, the methodological limitations of these studies should be remembered. In particular, the programs evaluated may not be representative of all programs, and rarely were long term effects evaluated. In addition, they are based upon knowledge tests designed by the teacher, and not upon standardized knowledge tests. Because such tests are most likely to cover those facts emphasized by the teacher, they are likely to exaggerate the amount learned.

Impact upon attitudes. Several studies suggest that some sexuality courses may increase the tolerance of the students' attitudes toward the sexual practices of others. In this respect, students become more liberal. However, the courses seem to have little impact upon the students' personal morality. More specifically, the beliefs that students have about their own sexual behavior with others do not appear to change. Thus, the concern that sex education in high school will make students more sexually permissive is not substantiated by the literature.

However, this evidence is not compelling; several of the studies were based upon small sample sizes; few examined long term effects; and a few contradicted each other. Thus, these conclusions should be viewed with caution.

Impact upon sexual activity. No previous study has employed an experimental design to evaluate the impact of high school sexuality education

upon sexual behavior. However, three surveys (Zelnik and Kim, 1982; Spanier, 1978; and Wiechmann and Ellis, 1969) have indicated that high school sexuality education programs are not associated with sexual activity.

Studies employing experimental designs have examined the impact of college classes upon sexual behavior. They indicate that college courses do not increase sexual behavior, unless that is an explicit goal of the course. Most college classes are more permissive, exhaustive, and explicit than high school classes. If college classes do not increase sexual behavior, then high school classes probably do not either.

Impact upon use of contraception. Zelnik and Kim (1982) provide the best previous evidence for sexuality education's effect upon contraceptive use. Their results are mixed, but all statistically significant results indicate that teenagers who had had sex education were more likely to use some method of birth control. Unfortunately, their survey data do not permit a direct causal analysis, and thus more compelling evidence is still needed.

Several programs that were not solely educational, but closely linked an educational component with clinic services apparently did increase the use of contraception (c.f. Zabin, Street, and Hardy, 1983; Brann, et al., 1979; Dickens et al., 1975). However, these programs were not primarily educational programs.

Impact upon pregnancies and births. Using their national survey data, Zelnik and Kim (1982) also examined the relationships between sexuality education and pregnancies. They found that among most groups of women, there were not statistically significant differences in pregnancy rates between those who had had sexuality education and those who had not. However, when their data from 1976 and 1979 were combined, there was a statistically significantly lower pregnancy rate among females who had taken sexuality education than among those who had not. Furthermore, when results were not statistically significant, they were nevertheless in this same direction. However, once again, these data cannot demonstrate causality and more compelling data are needed.

The combined education/clinic programs have appeared to reduce fertility rates. At one school in St. Paul, the fertility rate decreased 56 percent in three years (Brann et al., 1979). When the program was expanded to other high schools, the rates dropped further. That program was evaluated in this project and is discussed in greater detail below. Another program in Baltimore is producing similar preliminary results (Zabin, Street, and Hardy, 1983). Thus, education/clinic combinations may be more effective than education programs alone.

The Need for Additional Research

There are numerous methodological limitations with most of these past studies.

- Many studies evaluated single programs which may or may not be representative of all sexuality education programs, and thus it is difficult to generalize from them to other courses.

- Some large studies used survey designs instead of experimental designs, and thus cannot adequately demonstrate causality.
- Very few evaluations measured effects beyond the end of the program.
- Most studies focused upon knowledge and failed to measure the impact upon many important attitudes and behaviors such as sexual activity and pregnancy.
- Many questionnaires were poorly designed.
- Many evaluations reported the statistical significance of the change in students, but few evaluations reported the magnitude of the change and its theoretical or practical significance.
- None of the studies compared the effectiveness of different kinds of programs.

Moreover, the overall literature may be biased because evaluations finding programs to be effective are more likely to be submitted for publication and published than evaluations finding programs to be ineffective.

Thus, the literature leaves unanswered important questions about sexuality education programs.

- How does sexuality education affect students' attitudes and behaviors?
- Does it increase self esteem?
- Does it reduce unwanted pregnancy and sexually transmitted disease?
- Does it improve young people's communication with parents?
- What are the long term effects?
- What are the most effective models or approaches?
- What teacher characteristics and topics are most important?

The Background and Overall Design of This Research

During the mid 1970's the federal government increasingly recognized the large number of unintended teenage pregnancies and the other sexual problems encountered by youth and it sought solutions. Recognizing that sexuality education was a potentially effective solution, it asked the Center for Health Promotion and Education (formerly the Bureau of Health Education) in the Centers for Disease Control to assess and help develop effective sexuality education programs. The Center for Health Promotion and Education in turn awarded Mathtech two consecutive contracts to undertake the development and evaluation.

The basic goal of this research was to find, improve, evaluate, and describe effective approaches to sexuality education. To meet this overall goal, we completed several steps in the two contracts.

In the first contract, we:

- reviewed all of the relevant research on sexuality education
- defined important goals of sexuality education
- identified and had 200 professionals rate the important characteristics of programs believed to facilitate those goals
- identified potentially effective approaches to sexuality education

- identified numerous promising examples of each approach with the desired characteristics
- developed preliminary methods and questionnaires to evaluate programs.

The findings of the first contract were summarized in a six-volume report entitled An Analysis of U.S. Sex Education Programs and Evaluation Methods. The review of the research in that report demonstrated that insufficient research had been previously conducted to determine (1) whether sexuality education would reduce unintended pregnancies and (2) what kinds of programs were most effective. Consequently, the Center for Health Promotion and Education awarded Mathtech a second contract to select, improve, and carefully evaluate different approaches.

In this second contract, we:

- selected programs representing different approaches: 6-hour programs, semester programs, conferences, programs for young people alone and for young people and their parents together, peer education programs, both school and non-school programs, and both educational and educational/clinic approaches
- improved each program as much as feasible by conducting an initial formative evaluation, suggesting program changes, providing training, and providing materials
- improved the questionnaires and methods of evaluation
- conducted a rigorous evaluation of the effectiveness of each program using quasi-experimental designs, and questionnaire and pregnancy data
- described the effectiveness of the programs
- developed materials to help others implement the most effective approaches

The results of this second contract, including the findings of the evaluation and the implementation materials, are presented in the volumes summarized above.

Programs Selected for Evaluation

As indicated above, one of the first steps in this contract was to select exemplary programs. We initially selected ten programs, dropped four of them for a variety of reasons, and then added three more. These programs are distributed around the country. Several sites offer more than one program; two offer various programs in a variety of settings.

Comprehensive Programs

A comprehensive, semester-long, course for juniors and seniors (Site 1). The students meet for one hour per day for an entire 18-week semester. Communication skills are taught early, then reinforced throughout the course. Other topics include biological aspects of sexuality, health and sexuality, relationships, decisionmaking, sex roles, sexually transmitted disease, contraception, teenage pregnancy, child care, and sexual violence. The course promotes the values of love, respect, and responsibility, while emphasizing

that exploitation is wrong. The teacher uses predominantly group discussion and roleplaying, with some lectures and films.

The school serves a lower middle to middle class population that is about 80 percent Black and 20 percent White.

A one-year course for juniors and a semester seminar for seniors (Site 2). Nearly all eleventh graders take a year-long course that meets three days per week and covers interpersonal relations; communication skills; reproduction, contraception, and decisionmaking; pregnancy and prenatal development, child development, adulthood and aging; dating, sex roles and marriage.

Twelfth graders may elect (with parental consent) to take advanced studies in human sexuality, which meets for one semester. That course covers the topics of interpersonal skills (exploring feelings and attitudes, communicating with others, group process), interpersonal relationships (peers, family); adolescent sexuality (dating, love, romance and problems, making decisions); sex role socialization; social issues; sexual identity and orientation; life planning (challenges of adulthood); personal growth.

The instructor holds orientation and other special sessions for the parents.

The school serves about 3,300 students from a predominantly White upper middle class suburban/rural area.

A one-year freshman course and a semester-long junior/senior seminar (Site 3). The freshman course integrates sexuality topics into other health science topics such as the origins of life and body systems (digestion, respiration, circulation, endocrine, reproductive, and nervous systems). In the area of sexuality, the course covers communication skills; fetal development; childbirth; sex differences; attitudes toward sexuality and reproduction; our Judeo-Christian heritage; today's culture (media, peer pressure, religious beliefs); decisionmaking about sexual activity and teenage parenthood; birth control; religious and ethical considerations involved in contraception and abortion; reproductive health; sexually transmitted disease; psycho-sexual development; and commitments to family, friends, and future family members. Throughout the course, students are encouraged to examine their own attitudes, as well as the attitudes of their families, the community, and society, and to consider how these attitudes and values bear upon decisions they are or will be making.

Both juniors and seniors can take a semester course focusing solely upon sexuality. The class more openly discusses issues related to sexual identity, interpersonal relationships, the history of sexual attitudes, and decisionmaking.

The instructor holds an orientation session for the parents of the ninth graders, and two six-session seminars for all parents.

The community is White, middle to upper class, and suburban.

An integrated K-12 program (Site 4). In grades kindergarten through 3, sexuality material is integrated into other topics and includes family

composition, duties, and responsibilities; self-concept; plant and animal life cycles; and human growth. In the 4th grade, sexuality continues to be integrated into other topics, but now includes family roles, methods of handling emotions, human growth patterns, and body parts (but not specifically reproductive organs). In the 5th and 6th grades more formal 2-week sexuality units build upon the material from previous years, and focus more upon male and female reproductive systems, body changes during puberty, and heredity. The 7th and 8th grades cover reproduction in other animals, human reproduction, sexually transmitted disease, understanding parents, communication, friendships, and other topics in interpersonal relations. The 9th and 10th grade units last about 2 to 3 weeks, emphasize some of the previous material, and introduce life planning, birth control, important values, and decisionmaking. Finally, students take a year long course during either their 11th or 12th grades. Designed to better prepare them for adulthood, it covers many of the previous topics in much greater depth, and also includes other topics in family living (e.g., marriage, fiscal management, responsibilities of parenting).

The school serves a small, rural, middle class community.

Short-Term Programs

A five-session course in schools (Site 5). A community mental health center providing family planning services teaches a five-hour course, one hour per day, in the community high schools. In that brief time, it covers anatomy and physiology, dating, sexual decisionmaking, birth control, teenage pregnancy, and sexually transmitted disease. The course incorporates a variety of experiential activities and films to engage the students.

The schools serve rural, agricultural communities that are predominantly White and Protestant.

A six-session course in schools (Site 6). A family planning clinic teaches a six-hour course, one hour per day, in many community high schools. It covers many of the topics in the program above, but focuses more upon sexual decisionmaking, the consequences of teenage pregnancy, and birth control. It also includes films and discussions to engage students.

The communities served are predominantly Mexican-American, Catholic, and poor.

A 10-16 session course for youth groups (Site 7). Although this course is sometimes taught in schools, the community mental health center more commonly teaches it to other youth groups (where we evaluated it). Many of these adolescents are disadvantaged. The course includes a variety of activities and discussions on building esteem, clarifying values, decisionmaking and communication skills, changes during adolescence, adolescent relationships, love and marriage, adolescent parenthood, the costs of parenting, the needs and rights of children, planning toward the future, birth control, and sexually transmitted disease.

A five-hour conference (Site 5). The community mental health center teaching the five session course also covers the same material in one day in a

conference format. Most of the topics and activities are the same.

An all-day conference (Site 8). Another family planning agency implements all day conferences. Each conference starts with performances of a troupe of high school students who perform semi-improvizational skits emphasizing issues in adolescent sexuality. The conference follows with small group discussions, rather extensive health fairs, lunch, films, and more small group discussions. In the group discussions, emphasis is given to decisionmaking about sexuality and birth control. Information about birth control is provided. Each conference is cosponsored with local high schools or other well established groups.

Other Types of Programs

A peer education program (Site 6). A family planning agency gives selected students in schools at least 30 hours of training. The students, in turn, give presentations to classes of students in their school, talk with their peers informally in the school halls and elsewhere, answer questions, try to dispel myths, and make referrals to appropriate agencies. This program is also implemented in a Mexican-American community.

A parent/child program (Site 5). The community mental health center offers four related parent/child programs -- for fathers and sons 9 - 12 years old, fathers and sons 13 - 17 years old, mothers and daughters 9 - 12 years old, and mothers and daughters 13 - 17 years old. Most programs last six evenings and include didactic material, small group discussions, films, and numerous activities that facilitate parent/child communication right there in the class. They cover the most common sexuality topics. This program is also offered in the rural agricultural communities mentioned above.

A high school education/clinic program (Site 9). The program offers comprehensive medical and educational services to adolescents in the school building. It combines sexuality education, prenatal care, day care services for students' small children, and primary adolescent medical services ranging from athletic physicals to family planning counseling and contraceptive follow-up. In the regular classrooms, clinic staff cover some of the topics in sexuality education; in the clinic, they meet with students individually. If students are considering having sex, the staff encourages abstinence. If the students are having sex, the staff provides information and counseling on different methods, conducts gynecological exams for females, makes referrals to a hospital teen program for prescriptions, and provides follow-up including checkups in the high school clinic.

Representativeness of Programs

These programs obviously represent a variety of different approaches to sexuality education. However, it is not prudent to generalize from these sexuality education programs to all sexuality education programs. We selected these programs because they represented particularly promising examples of different approaches. We have never claimed that they are the best programs in the country, although they are probably more effective than average. Furthermore, different programs, different curricula, and different teachers

have different goals. Thus, it is certainly imprudent to conclude that other programs would have the same effects as these programs.

On the other hand, the evaluation of these programs indicates the kinds of effects programs can have if they have similar goals, curricula, and teachers. All of these programs, except possibly the clinic program, can be replicated with reasonable resources available to most schools.

Methods Used To Evaluate Programs

As much as feasible, we designed this study to overcome the problems and limitations that have characterized previous studies. However, no single study can overcome all the methodological problems specified above, and this study is no exception.

In this study we used four different methods.

Method #1: Quasi-experiments Using Questionnaires Administered to the Participants

We used Method #1 at all of the sites except for the clinic program. Of the four methods used to evaluate the non-clinic programs, it produced the most systematic, comprehensive, and valid data.

Basic design. In all of the non-clinic sites, we collected pretest and posttest data from the students in the sexuality education classes. In most of the sites, we also collected second posttest data three to five months after the end of the program. This is important, because some effects of sexuality education programs may diminish shortly after the program as other events in the students' lives become more important. Other effects may not occur until months later when some of the students may first begin dating, having sexual relations, or using methods of birth control.

Three to five months is a greater amount of time than that in most previous studies, and it is sufficient to assess the impact of time upon knowledge and attitudes. However, to full measure the impact upon sexual behaviors, we would have needed a longer period of elapsed time. Our data may not reveal some actual behavioral effects, particularly change in the use of contraceptives, because these effects may have occurred after the second posttest. However, the effects of programs upon most outcomes tend to diminish with time as other intervening events influence behavior, and we were able to measure the impact of the courses upon those who were already sexually active.

At none of the sites were we able to randomly assign adolescents to sexuality classes (experimental groups) and other classes (control groups). However, at several sites, we administered questionnaires to other classes with similar students or to adolescents in other programs and they served as control groups. In these sites, the members of the control groups were well matched with the members of the sexuality classes.

In other sites, we were not able to administer questionnaires to control groups. For example, in one site the entire junior class participated in the

sexuality unit, and the school itself could not produce a control group of similar students. In those sites, we used the control groups from other sites that best matched the experimental groups in terms of demographic characteristics and duration of elapsed time between pretests and posttests.

In general, it is important to have well-matched experimental and control groups that have been matched through random assignment or some other means. However, our inability to employ randomization and to obtain control groups at all sites probably did not affect the conclusions for several reasons. First, we compared the change over time in knowledge, attitudes, and behavior in the experimental groups with the change over time in the control groups; we did not compare knowledge, attitudes, and behavior at a specific time of the experimental group with those of the control group. Second, at most sites, we compared the experimental groups with two or more control groups, and the results were always similar. Third, many results were not statistically significant because there were insignificant or very small changes between the pretests and posttest, not because large changes in the experimental groups were matched by large changes in the control groups. Fourth, the results of programs with excellent control groups at the same site are very similar to the results of the programs with control groups from different sites. Finally, most changes in control groups were consistent with what we know about adolescent sexual development from other studies, e.g., as they grow older, adolescents learn more about sexuality and engage more frequently in sex. Thus, it does not appear likely that inadequate control groups affected the conclusions of this study.

Development of the questionnaires. We put a great deal of effort into developing the questionnaires to measure the outcomes of the programs. We repeatedly pretested and revised them over a two year period. We attempted to measure more than 50 different outcomes.

The final knowledge test is a 34-item multiple choice test which included questions in the following areas: adolescent physical development, adolescent relationships, adolescent sexual activity, adolescent pregnancy, adolescent marriage, the probability of pregnancy, birth control, and sexually transmitted disease. The entire test has a test-retest reliability coefficient of .89.

The Attitude and Value Inventory includes 14 different scales, each of which consists of five 5-point Likert type items. These scales measure clarity of long term goals and personal sexual values; understanding of emotional needs, personal social behavior, and personal sexual response; attitudes toward various gender role behaviors, sexuality in life, the importance of birth control, premarital intercourse, and the use of pressure and force in sexual activity; recognition of the importance of the family; self-esteem; satisfaction with personal sexuality and social relationships.

We measured both the test-retest reliability and the inter-item reliability of these scales. Most of the scales have an adequate reliability; some scales could be substantially improved; some scales had excellent reliability. Most of the reliability coefficients for all sites grouped together were in the .70's and .80's.

Many behaviors have at least three important components or aspects: the skill with which the behavior is completed, the comfort experienced during that

behavior, and the frequency of that behavior. Thus, the Behavior Inventory measures these three aspects of several kinds of behavior. In particular, it measures: skills in social decisionmaking, sexual decisionmaking, communication, assertiveness (saying "No"), and birth control assertiveness. It also measures comfort engaging in social activities, talking about sex and birth control, talking with parents about sexuality, expressing concern and caring, being assertive sexually, having current level of sexual activity (including abstinence), and getting and using birth control. Finally, it measures the frequency of communication about sex and birth control with parents, friends, and boyfriends or girlfriends, whether or not the respondents had ever had sex or had had sex the previous month. If they had had sex the previous month, the inventory measured the frequency of sexual activity and of using no method, less effective methods, and effective methods of birth control.

The questions measuring skills use 5-point scales; the questions measuring comfort use 4-point Likert type scales. The questions measuring frequency of sexual activity, use of birth control, and communication about sexuality ask how many times during the previous month the respondent engaged in the specified activity.

Again we measured the test-retest reliability and the inter-item reliability. They ranged from fair to excellent. The questions about sexual activity were the most reliable. The Behavior Inventory included ten questions about sexual behavior that should have been consistent with one another. Consequently, we wrote a computer program which searched for and printed out any type of inconsistent answers to these questions. Fewer than five percent of the cases had inconsistent answers, and these were excluded from further analysis. Thus, the remaining data are quite consistent, further suggesting that the answers to these questions are reliable.

We first developed the Knowledge Test, Attitiude and Value Inventory, and Behavior Inventory, but these three basic questionnaires were far too long and comprehensive to administer in short programs. Therefore, we developed much shorter, integrated questionnaires which included those questions from the three basic questionnaires that were most important and that measured the outcomes of programs most achievable by short programs. The total number of questions was reduced from 158 to about 54, depending upon the particular version.

When we coded and analyzed the data, we matched each respondent's pretest with that respondent's posttest. This is important because participants who drop out of a program before it is completed may be quite different from those who complete the program. When we could not match questionnaires, we excluded them from subsequent analysis. At most sites we were able to match the vast majority of questionnaires.

Method #2:
Survey of the Participants' Assessments of the Programs' Effects

To obtain a second kind of evidence for the effects of programs, we administered a Class Evaluation to all participants at the end or shortly after each non-clinic program. The Class Evaluation asked the participants to

evaluate the program and to assess its effects.

In general, asking participants to assess how the program affected some outcome (e.g., knowledge) is not as valid a method as measuring that outcome both before and after the course and comparing the scores. However, Method #2 can sometimes better assess subtle change that Method #1 is not sufficiently sensitive to measure. Furthermore, it is a somewhat different method with different assumptions, biases, and errors, and data from this method can profitably be compared with that from the first method.

The Class Evaluation contained two parts. The first part asked the respondents to rate numerous teaching skills of the teacher, characteristics of classroom interaction, and program structure and materials. The second part asked the participants to assess as accurately as possible the current or future effects of the course upon their knowledge, understanding of personal behavior, clarity of values, attitude toward birth control, communication about sexuality, communication with parents, probability of having sex, probability of using birth control if they have sex, self respect, satisfaction with social and sexual relationships, decisionmaking effectiveness, and interpersonal social skills.

Normally when evaluators ask participants to assess the impact of a program, the participants give excessively positive ratings of the program and claim that it had a far greater impact than it probably had. This overstatement is particularly evident when the participants enjoyed the program and liked the teacher. Thus, in general, researchers should give less credence to course evaluations.

However, early in our evaluation efforts, we learned that many participants could more accurately recognize some of the more subtle changes that the course had produced in them and that the pretest/posttest questionnaires could not detect. We also analyzed the participants' assessments and found them to be consistent with our expectations of the program. For example, participants in shorter programs indicated that those programs had less impact than participants in longer programs, and participants indicated more change in those areas more amenable to change. Thus, we recognized that course assessments can provide useful additional evidence about the impact of programs, even though they probably produce less valid information than the first method.

Method #3:
Survey of Parents' Assessment of Program Effects

To obtain a third kind of evidence for the effects of programs, we administered a Parent Class Evaluation to some parents at the end or shortly after some of the non-clinic programs. The Parent Class Evaluation asked the parents to evaluate the program and its effects.

In general, parents do not know as much about their children's behavior as their children do. However, parents can contribute an adult perspective and possibly a more distant and objective perspective. As is true for Method #2, surveying parents is a somewhat different method with different assumptions, biases, and errors, and data from this method can profitably be compared with

that from the first method. Finally, the views of parents are important in and of themselves, because of the importance of parents' support.

Questionnaire Approval

Our federal contract and the canons of social science research required that several different organizations formally approve these questionnaires. These groups included the Office of Management and Budget (OMB), an official Human Subjects Review Board, appropriate authorities at each site (e.g. the School Boards), and finally, parents or legal guardians of all respondents.

Administration of Questionnaires

The teachers of the courses administered the questionnaires. In evaluations of educational programs, evaluators commonly have test administrators administer the test. We did not do this for two reasons. First, when we used a test administrator during a teacher's absence at one site, the students were far less willing to answer carefully and honestly the personal questions in these questionnaires than when their teacher whom they trusted was there to provide assurances. Thus, we concluded that using test administrators instead of the teachers would have decreased the validity of the data. Second, we could not afford to pay test administrators to go to all the sites around the country each time the questionnaires were administered. Because questionnaires were administered at each site on many occasions, the cost would have been prohibitive.

Instead of sending test administrators, we provided lengthy and detailed written directions to the teachers and discussed the directions by phone. This appeared to be an acceptable approach.

Although the teachers had the opportunity to see the questionnaires, none of them "taught to the test." That is, they did not give special emphasis to the material in the questionnaires. In fact, the opposite was more of a problem; some of the teachers may not have covered a few of the specific facts that students needed to answer a few of the knowledge questions.

Statistical Analysis

For the experimental design data from Method #1, we relied primarily upon the matched pairs t-test for tests of significance. When we examined pretest and posttest data, we applied the t-test to the means of the pretests and posttests. When we compared the experimental group with the control group, we applied the t-test to the mean change (posttest minus pretest) in the experimental and control groups.

Method 4:
Collection of Pregnancy and Clinic Data

At four sites, including the clinic site, we obtained estimates of the numbers of annual pregnancies or births for several years. At these four

sites, estimates were provided by clinics that students would be especially likely to attend if pregnant. At three of the sites we compared the pregnancy or birth rates before the programs were implemented with the pregnancy or birth rates after the programs were implemented.

In the fourth site, we could compare students. We knew which students in the school had taken sexuality education and which students had gotten pregnant, and thus we could compare the pregnancy rates of those students who had taken the program with those who had not. In that site, the students who had taken the program were more likely than other students to be juniors or seniors (instead of freshmen or sophomores), and to have slightly higher grade point averages. To control for these factors, we used analysis of covariance.

The data from that fourth site and from the clinic site produced the most valid evidence for the impact of programs upon pregnancies or births.

In the clinic site, the staff also collected annual data on the percentage of students using the clinic for any purpose, the percentage of females using the clinic for family planning services, the numbers of births, the fertility rates, the contraceptive continuation rates, and the dropout rates among adolescent mothers in school.

Summary and Discussion of Results

Summary of Student Evaluations of the Programs

The vast majority of the student evaluations of the comprehensive courses were very positive. On the 1-5 Likert type scales ranging from "Very Poor" (1) to "Excellent" (5), teachers and courses typically received overall ratings of 4.8 or higher. These are remarkably high median scores.

Moreover, when participants used different 1-5 Likert type scales ranging from "Not at all" (1) to "A great deal" (5) to rate the extent to which teachers and courses had various important qualities, they provided median ratings of 4.0 or greater on nearly all positive qualities, and median scores of 2.5 or less on nearly all negative qualities. That is, all programs had nearly all of the positive qualities to a large extent or more, and nearly all of the negative qualities to a small extent or less.

More specifically, the students thought the teachers were enthusiastic about teaching the course, cared about them and respected them, and consequently got along well with them. The students thought the teachers talked at a level the students could understand, encouraged the students to talk about their feelings and opinions, and listened to the students. They thought the teachers were comfortable discussing sexuality.

Students felt they were allowed to have views that differed from others in the class and that their views in class were kept confidential. Consequently, students claimed that they asked questions and participated in class discussions a rather large amount and had only a small amount of discomfort. Inasmuch as the topic was sexuality, the fact that the students had only a little discomfort asking questions and expressing thoughts was a real achievement.

Finally, the students thought that the teachers emphasized the basic values of the course: the teachers strongly discouraged them from hurting others in sexual relationships and strongly encouraged them to think about their own values about sexuality, to think about the consequences of sexual relations before having sex, to use birth control to avoid unwanted pregnancy if sexually active, and to a lesser extent, to talk with their parents about sexuality.

In sum, students rated their sexuality education teachers and courses very positively. Their ratings strongly indicate that these courses had all of the qualities that professionals in the field previously identified as important. These ratings strongly suggest that these courses should be successful, and they do not suggest any faults that would reduce their effectiveness.

These high ratings represent one reason to continue offering sexuality education.

Summary of Parent Evaluations of the Programs

Parents of students in seven different courses also rated the courses. Using a 1-5 Likert type scale from "Very Poor" (1) to "Excellent" (5), they rated the teachers, the topics covered, the materials used, the format and organization of the course, and the overall course. Again all of the ratings were very high; median ratings ranged from 4.0 to 5.0. In the parent/child program, the parents observed first hand all the parts of the course and consequently could give more valid ratings. Their median ratings ranged from 4.6 to 4.9. Parents clear approval of and support for the courses offer another reason to continue offering sexuality education.

Difficulty in Changing Behavior

Before the results on the effects of programs are presented, it should be emphasized that the goals of sexuality education are extremely demanding and are far more difficult to achieve than the goals of most other school classes. In many respects, evaluating sexuality education programs on the basis of these goals is unfair. Most other classes are not evaluated by measuring their impact upon attitudes, skills, and behavior outside of the classroom: civics classes are not evaluated by measuring students' later voting behavior; English classes are not evaluated by measuring students' improvements in their speech and thinking outside of class; and health classes are not evaluated by measuring students' improvements in their eating, dental, exercise, or smoking habits, nor by measuring their impact upon student illness.

In contrast, sexuality education classes are evaluated by measuring their impact upon attitudes, social and sexual behaviors outside of class, and student pregnancies. Thus, when sexuality education units or courses fail to meet such behavioral goals within several months of the course, the programs should not be singled out, unduly criticized, and/or removed from the curriculum, because most other courses would also fail to affect behavior outside the classroom within that time span.

Nevertheless, we have evaluated the impact of sexuality education upon these very behavioral goals for three reasons: our society needs solutions to unintended teenage pregnancy and other sexual problems; these behavioral goals have been proffered for sexuality education; and they are frequently used to justify the development and implementation of programs.

The evaluation of the non-clinic programs is discussed first; then the clinic program is discussed.

Discussion and Summary of the Pretest/posttest Results

In general, the pretest, posttest, and second posttest data from all the non-clinic programs indicate that between the beginning of the programs and five months after the programs, most programs increased knowledge, but did not have a significant impact upon most other outcomes. Either there was not a significant difference between the participants' pretest and posttest data, or a significant increase disappeared by the time of the second posttest, or an increase among the participants was not significantly greater than a similar increase among the control group members.

There were major exceptions. For example, the parent/child programs increased parent/child communication, and the clinic program increased the use of birth control and reduced pregnancies and births. Some other programs also had other effects. Information about each individual program is available in the first volume, Sexuality Education: An Evaluation of Programs and Their Effects.

Impact upon knowledge. Most programs significantly increased students' knowledge. That is, there were increases between the pretests and posttests (and delayed posttests when administered), and these increases were significantly greater among the sexuality classes than among the control groups. On the average, program participants increased their test scores by about 10 percentage points more than the control groups. However, the greater gains of the program participants varied greatly from program to program. In some programs they gained only 3 percentage points more than their respective control groups; in others up to 17 percentage points more; and in one program, 41 percentage points more.

There were much greater gains in knowledge among classes with younger students than among classes with older students. Probably the younger students simply knew much less and had much more to learn. Typically their pretest scores were much lower than the pretest scores for the older students. However, the very youngest students completed different knowledge tests -- tests which may have made it easier for students to increase their test scores. Furthermore, the very youngest students had also taken part in parent/child programs and the presence of their parents may have facilitated learning. Thus, these data provide evidence, but not compelling evidence, for the proposition that the younger students, in general, learn more than the older students.

Surprisingly, the longer, more comprehensive courses did not appear to have a greater impact upon knowledge than the much shorter courses. There are several possible explanations for this. First, some of the more comprehensive

courses focused less upon increasing knowledge and more upon exploring values or other goals. Second, the greater time elapsed between the pretests and the posttests for the longer courses gave their students more opportunity to forget material and their control groups more opportunity to increase their knowledge. Third, the students in longer, more comprehensive courses completed longer questionnaires covering more topics than in the shorter courses. Improvement may also have been more difficult to demonstrate with these questionnaires than with the shorter questionnaires. Finally, some of the longer courses were taught to older students who had smaller increases in knowledge regardless of the length of the course.

In the longer, more comprehensive programs where longer knowledge tests were administered, each knowledge test was composed of several separate tests measuring knowledge in eight different areas. In these programs, there were significant increases in some areas, but not in all. The topics having significant gains in the most programs were the probability of becoming pregnant, birth control, and sexually transmitted diseases.

In the majority of courses, both long and short, knowledge scores did not decline between the posttest and the second posttest; rather they increased. This suggests that students do not forget the information quickly, but continue to learn after the course is completed. Indeed, some of the courses consider that one of their goals. For example, they try to provide a basis for learning in the classroom and provide written materials to be read later at home.

A few programs had some statistically significant increases at the first posttest, but not at the second posttest. In most cases, the increase was lost not because students forgot the material, but because the control groups also learned a considerable amount of material and caught up somewhat.

There are several possible reasons why courses did not produce even greater increases in knowledge than those observed. First, in some courses students did not take written notes during class, did not have homework, and did not study for tests. Certainly, few of the students studied for these questionnaires. Thus, students may not have reinforced the factual material that they had learned.

Second, sexuality classes are very different from other courses in school in an important respect. Teenagers continually participate in a large pool of information about sexuality, a pool containing both correct and incorrect information. Thus, teenagers may learn correct information in class, but that correct information may be diluted by incorrect information learned later outside of the classroom. This process is in contrast to other topics in school which students rarely discuss outside of class. If a student has correctly learned factoring in algebra class, that student is not likely to discuss and learn an incorrect method of factoring outside of class.

Third, the pretest/posttest evaluation may have understated the amount students actually learned. Nearly all teachers reviewed the tests before their administration and indicated that they covered the questions included. Nevertheless, the test was a standardized knowledge test and did not necessarily ask questions about those facts emphasized by the teachers in the classroom. This explanation is supported by the fact that on the few knowledge tests designed by the teachers, the students demonstrated substantially greater improvement in knowledge.

Impact upon clarity of values. We measured clarity of participants' values at all the non-clinic programs. The data indicate that with one exception, most sites did not have much impact upon clarity of values during the evaluation period. However, three programs sponsored by one site had a substantial and statistically significant impact. The participants in their five-day school courses, their five-hour school conferences, and their parent/child programs for older children all had significantly greater gains than their control groups. These gains ranged from .3 to .6 on 1-5 Likert indices.

In four other programs, there were increases in clarity of values that were almost as large. Although the increases typically ranged from .2 to .4, they were sometimes paralleled by increases in their control groups. Consequently, the increases in the experimental groups were not significantly greater than the increases in the control groups.

It is not possible to determine whether the apparent greater success of the first site was caused by their control groups having less gain, by their working with younger adolescents, by the quality of their teachers and curricula, and/or other factors.

Impact upon other measures of self understanding. In the longer programs, we also measured clarity of long term goals, clarity of personal sexual values, understanding of emotional needs, understanding of personal social behavior, and understanding of personal response to sexual situations. On most of these measures, most programs do not appear to have had an impact during the program or within three to five months after the program. Once again, there were small increases between the pretests and posttests, but often there were also small increases in the control groups.

These results are somewhat surprising because the more comprehensive programs often focused upon self understanding and had numerous activities designed to increase it. Moreover, many students reported either verbally or in writing that the course increased their self understanding.

There are several possible reasons why the data were not more positive. First, the clarity of people's values, and their self understanding more generally, may be affected much more by personal life experiences than by talking or reading about the experiences of others. If so, and if both the program participants and the control students have similar experiences outside the classroom, then both groups would have similar increases in self understanding, as shown in the data.

Second, measuring different dimensions of self understanding is certainly more difficult than measuring knowledge. Although the scales had adequate or better than adequate test-retest reliability coefficients and inter-item reliability coefficients, they obviously did not measure self understanding perfectly, and measurement error may have obscured small improvements.

Third, one of the control groups had an unusually large increase in clarity of long term goals that was probably due to their imminent graduation from high school.

Impact upon attitude toward premarital sex. We measured attitude toward premarital sex in all non-clinic sites. These data indicate that the sexuality programs did not make the students more liberal or more accepting of premarital sex. In site after site the students' attitudes toward premarital sex changed very little.

If the programs had any impact, it was that the longer, more comprehensive programs prevented the students from becoming more liberal. When all the more comprehensive programs were grouped together, data indicated that the program participants did not change their attitudes, while the control students became more liberal. These statistically significant results were probably not caused by inadequate control groups. Young people tend to become more accepting of premarital sex as they become older, and the control groups reflected this tendency. Thus, the results suggest that the longer programs prevented change.

Impact upon attitude toward birth control. In all non-clinic sites, we also measured participants' attitudes toward the importance of birth control. These data indicate that most programs had no impact upon their attitudes toward the importance of birth control either during the program or within five months of the program. In most cases, both the sexuality classes' and the control groups' scores increased. In general, respondents in both the experimental and control groups felt that birth control was important and mean scores were typically above 4.3.

Although the mean scores are high, there is still considerable room for improvement, and, as noted, there were increases over time. Thus, these results were probably not caused by a ceiling effect, in which high scores on the pretests prevented any possible improvement.

The high scores suggest that the failure of sexually active adolescents to properly use birth control cannot be attributed to their failure to recognize its importance. Rather, there must be other reasons. For example, many female adolescents incorrectly believe that "it won't happen to me," others who have sex infrequently may not consider themselves sexually active ; and so on.

Once again, real life experiences may have much greater impact upon attitudes toward birth control than activities in the classroom. If a student's friend becomes pregnant, or if a student, herself, thinks she may be pregnant, those events may have a much greater impact than events in the classroom.

Impact upon other attitudes. At the longer, non-clinic programs, we also measured attitudes toward gender roles, sexuality in life, the use of pressure and force, and the importance of the family. Most of the comprehensive programs did not have any measurable impact upon existing attitudes toward gender roles, sexuality in life, or the importance of the family.

Some of the longer courses produced a significantly greater opposition to the use of pressure and force in social and sexual relations. Among all the program participants combined, there was an increase of .2 on the 1-5 Likert index, but no increase among the control students.

Impact upon self esteem and satisfaction with sexuality and social relationships. We measured self esteem, satisfaction with personal sexuality, and satisfaction with social relationships in all of the longer non-clinic programs. None of them had a significant impact upon any of these three outcomes either during the programs or within five months after the programs. All three outcomes seemed to be very stable, at least at the aggregate level. Mean scores changed only a little, and they changed about equally for the experimental and control groups.

A multitude of events affect self esteem and satisfaction with one's sexuality and social relationships -- earlier family experiences, doing well in school, meeting and asking out an attractive person of the opposite sex, losing a good friend. Thus, it is not surprising that a single course in school doesn't have a significant impact upon these outcomes.

Impact upon skills. In the longer non-clinic programs, we measured skills in social decisionmaking, communication, sexual decisionmaking, assertiveness, and communication about birth control. In the shorter programs, we measured only the last three. Most programs had no measurable impact upon any of these skills. In only a few programs were there any changes between the pretests and posttests, and when there were changes, they were typically matched by the control groups.

There were a few exceptions. In two sites there were increases of .2 on a 1-5 Likert type index, and one of these was statistically significant. Moreover, when all of the short programs were combined, there was also an increase of .2 in sexual decisionmaking skills among the program participants and no increase among the control students. This difference was also statistically significant, although just barely.

In general, however, the data indicate the programs had little impact upon skills. There are at least two major reasons for this. First, the questionnaires did not measure skills in the classroom; rather they measured self reports of the extent to which the students, outside the classroom, actually engaged in various behaviors believed to be the basic components of good decisionmaking, communication, and assertiveness. That is, the questionnaire did not measure whether or not the students had the skills, but whether they used them (or said they used them) in their everyday life. Although using skills in everyday life is certainly more important than simply knowing them in the classroom, it is clearly more difficult for programs to affect the use of skills outside the classroom.

Second, measuring the use of decisionmaking and communication skills is extremely difficult. Other researchers have tried to develop valid measures, but none of them was very successful. Although the scales used in our questionnaires have adequate reliability, they probably have the lowest validity of any parts of the questionnaire. Respondents probably have difficulty both understanding some of the ideas in the questions and remembering how frequently they actually used various skill components.

Impact upon comfort and frequency of communication about sexuality. At all sites except the clinic site, we measured comfort talking about sex,

comfort talking about birth control, comfort talking about sexuality with parents, the frequency of reported conversations about sex, and the frequency of conversations about birth control, with parents, friends, and girlfriends or boyfriends.

The data indicate that with one exception, the programs did not have a significant impact upon either comfort or frequency of conversations with any of these groups. There were few increases between the pretests and posttests, and where these increases occurred, they were commonly not greater than the increases in the control groups. With one exception, the couple of scattered findings were probably artifactual and not caused by the programs.

There was, however, a major exception -- the parent/child programs for younger and older children. At these programs we measured parents' and children's perceptions of the children's comfort talking about both sex and birth control, parents' perceptions of their own comfort talking about sex and birth control, and both children's and parents' perceptions of the frequency of conversations.

In the short run, the program for younger children substantially improved the children's perceptions of their comfort talking with their parents about sex. In the long run, there was an improvement, but it was not significant. The parents perceived substantial improvement in their children's comfort in both the short and long run. Similarly, their own comfort increased significantly. There were also improvements in perceived comfort talking about birth control, but because of the small sample sizes, only one change was statistically significant.

According to both the children and their parents, the number of conversations about both sex and birth control increased significantly during the course. Naturally they would increase between the pretests and posttests, because the parents and children discussed sexuality during the course. However, more critically, the number of their conversations remained significantly higher at the second posttests. The parents' estimates differed from their children's, but both showed increases. According to the parents, the mean number of conversations about sex increased from 1.9 per month before the course to 8.2 per month four months after the course. The mean number of conversations about birth control increased from 0.1 to 1.1.

The program for older children had fewer effects, but it still appears to have increased comfort and frequency. The older children's ratings of their own comfort talking about sex did not change between the pretests and posttests, but the parents' ratings of their own and their children's comfort increased. The program did not appear to increase comfort talking about birth control.

According to the older children, the frequency of communication increased between the pretests and posttests, but by the second posttests the increases had diminished so that they were no longer statistically significant. However, according to the parents, the increases in communication remained significant for conversations about sex, but not about birth control. Thus, the program for the older children may have been effective, but not as effective as for the younger children.

In sum, most of the sexuality education programs did not have a significant impact upon comfort or frequency of communication, but the parent/child programs clearly increased the comfort of the parents, to a lesser extent increased the comfort of their children, and increased the frequency of communication. Moreover, the course for younger children was even more successful than the course for older children.

The findings for the less effective courses were surprising because participants, particularly those in the more comprehensive courses, do talk about sexuality in the classroom in a serious, constructive, and comfortable manner. Thus, many students practice talking about sexuality in the classroom, and all students see daily that sexuality can be discussed without great embarrassment. One would have predicted this practice and modeling would have made it easier for the students to discuss sexuality seriously outside of the classroom.

However, a verbal exchange between students in one class may have revealed part of the problem. One student asked for suggestions about how to handle a particular problem. A second student suggested using the communication skills that they had learned in that class. The first student replied that this classroom was special, and that the second student should have realized that you can't really use these communication skills in the real world.

Thus, courses did succeed in creating a social environment in the classroom conducive to discussing sexuality comfortably. Moreover, they succeeded even though many students had experienced years of discomfort with the topic of sexuality. However, the courses did not succeed in increasing comfort outside the classroom where the preestablished social environment apparently continued to produce discomfort. Apparently the students could not recreate enough of the classroom environment outside of the classroom when they were talking with parents, peers, or others who had not participated in the course and who had remained uncomfortable talking about sexuality. Clearly, communication patterns were well established before the students took the courses and were difficult for the courses to change, despite many hours of practice in the classroom.

However, the parent/child programs demonstrate that if you bring together parents and their children and start them communicating in the classroom in a constructive and comfortable manner, they will break down established barriers and will continue to communicate after the course is over. Notably, parents are an important part of the environment outside the school, and when they are also taught new skills, then a significant part of that outside environment is also changed, and sexuality can then be discussed more comfortably.

Perhaps this finding can be generalized to couples other than parents and children -- perhaps if girlfriends and boyfriends came to special courses together and began to discuss sexuality and birth control in the course, they would continue to discuss their concerns after the course.

Impact upon comfort with other social and sexual activities. At all programs except the clinic program and the parent/child program for younger children, we measured participants' comfort with their own current sex lives

(whatever that may be) and their comfort getting and using birth control. At the longer programs we also measured comfort engaging in social activities, expressing concern and caring, and being sexually assertive (saying "No").

The data indicate that the programs did not have any impact upon any of these areas of comfort. In very few programs were the changes in the sexuality classes any different from those in the control groups. Where changes were significant, they were sometimes in the desired direction and sometimes in the other direction; most of them were small; some were barely significant; they formed no clear pattern; and they were probably random or artifactual and not caused by the programs. Certainly the vast majority of data indicates that the programs had no impact upon comfort with these activities. Apparently comfort in these areas is difficult to change.

Impact upon sexual behavior. We administered questionnaires measuring sexual and contraceptive behavior at all the sites except for the clinic site and one non-clinic site. However, the number of participants at the parent/child programs who were sexually active was so small that those results are not meaningful.

The data for the remaining sites indicate that these programs neither increased nor decreased reported sexual activity up to three to five months after programs ended. For the most part, the programs had no impact upon whether or not participants had ever had sex or had sex the previous month nor upon the number of times they had sex the previous month. These findings were consistent whether analyzing data from individual programs or data grouped as longer and shorter programs.

There were a few minor exceptions. One course had a slight decrease in the percentage of students who had sex the previous month; another had a greater increase than the control group, but its control group had an unexplained decrease in activity; and one other course had a slight increase. Although these exceptions were statistically significant, two of them were barely significant and did not form any pattern; they were undoubtedly artifactual and not caused by the program. As noted above, when all of the courses were grouped together, there were no significant effects.

Impact upon contraceptive behavior. The questionnaire data indicate that up to three to five months after participation in programs, the non-clinic programs did not have any measurable impact upon the reported frequency of sex without birth control, the frequency of sex with less effective methods of birth control, or the frequency of sex with more effective methods of birth control. In most of the sites there were no significant differences, nor were there significant differences when the data from the longer and shorter courses were grouped. Thus, these questionnaire data strongly indicate that the non-clinic programs had little impact on pregnancy related behavior.

There were several minor exceptions. A senior seminar decreased the frequency of sex without birth control and the frequency of sex with less effective methods of birth control. However, these decreases were barely significant. One other site had a slight increase, and another a slight decrease in the frequency of sex with effective birth control; these were also marginally significant.

These data indicate that it is extremely difficult for educational programs to affect actual behavior. Researchers have documented a large number of factors that are related to decisions about sexual activity and contraceptive use (e.g., if two people are going together, they are more likely to have sex). Apparently, those factors and others had a far greater impact than participation in relatively short sexuality education programs. After all, even the longest program is miniscule in comparison with all of the sexuality education that each person receives from peers, parents, the media, and elsewhere.

There is also the possibility that the behavioral questionnaires were not valid. For example, some people may have wanted to exaggerate their sexual activity, while others may not have wanted to admit to sexual activity or may have been concerned about exposure.

However, for several reasons, it appears likely that the questions were valid. First, many steps were taken to assure anonymity, and many teachers commented that the students seemed comfortable completing them. Second, we wrote and used several computer programs to check every questionnaire and to exclude those with questionable data. Only a small percentage were discarded. Third, the test-retest reliability was very high for these questions. Fourth, we checked the consistency of many questions regarding sexual behavior and the vast majority were consistent. Those that were not were excluded. Fifth, the questions have a high face validity -- they are clearly and directly asking what we wish to measure. Sixth, most types of error would have occurred equally in the experimental and control groups and consequently would have had little impact upon these conclusions. Finally, these results are consistent with the pregnancy data which were collected independently.

It should be fully realized that these results apply only to the programs that were primarily educational approaches and were evaluated by the questionnaires. The clinic program collected other records indicating that it increased the use of birth control. It is discussed in a later section.

Summary of the Results of the Pregnancy Data

We collected pregnancy data from three of the non-clinic programs and from the clinic program. The results for the non-clinic sites were consistent with the pretest/posttest questionnaire data. They indicated that the non-clinic programs did not have a significant impact upon pregnancies. At none of the non-clinic sites were the data statistically significant.

At none of the three non-clinic sites did the data prove that the programs had no impact at all upon pregnancies. That is, any of the three programs could have had a small impact without that impact appearing statistically significant in the data. However, the impact upon pregnancies was measured in three somewhat different ways at the three sites, and at none of the sites was there any indication that increasing the sample size somewhat or improving the methods in some other way would have made an impact significant.

Summary of the Student and Parent Assessments of the Course Impact

In their assessments of the impact of the course upon themselves, participants in nearly all of the programs indicated that the courses had a particularly large effect in four different ways -- the courses increased their knowledge about sexuality, made them feel that using birth control is more important, increased the chances that they would use birth control if they have sex, and increased their comfort with using birth control. On all four of these outcomes, the median scores for most sites were between 4.0 and 4.7 on a 1-5 Likert type scale measuring change. That scale allowed for change in both negative and positive directions (e.g., the participants could indicate that they were either less likely or more likely to use birth control).

To a lesser extent, students in most sites also thought the courses increased their understanding of themselves and their behavior, made their values about sexuality more clear, helped them talk about sexuality both more effectively and more comfortably, and improved their decisions about their social lives and their sexual lives.

In general, students who participated in longer, more comprehensive courses thought that these courses had a greater impact upon them than did the participants in shorter courses.

In nearly all of the sites, the students also indicated very clearly that the course did not affect the probability that they would have sex. On a 1-5 scale ranging from much less to much more, the median score in affecting the probability of having intercourse was typically 3.0 ("about the same").

In six of the different programs we were able to ask the parents how they felt the course affected their teenagers. We asked them fewer and less detailed questions, but generally they supported the students' claims that the course had a positive impact upon them. Parents believed that the course increased their teenagers' knowledge and also the chances that their teenagers would make good decisions about social and sexual behavior. To a lesser extent, they believed that the course increased the clarity of their teenagers' values. They also indicated that, as a result of the course, they had communicated more with their teenagers about sex and were more comfortable doing so.

Relative Validity of the Different Methods

The different methods obviously produced somewhat different conclusions. The pretest/posttest data and the pregnancy data provide one coherent picture; the student and parent course assessments suggest another. For the reasons discussed above in the methods section, the pretest/posttest data and pregnancy data are undoubtedly more valid; the assessments are less valid. However, the assessments are more likely to capture small, subtle changes. The complete volume discusses this more fully.

Summary of the Results of the Clinic Program

The analysis of the clinic program demonstrated a much more positive

impact. Within three years of opening the clinic in two different schools, 75 percent of the students were using the clinics for some reason; 25 percent of the female students were using the clinics for family planning services; the number of births dropped dramatically; and most critically, the fertility rates (number of births per 1,000 female students) also declined dramatically.

Although there were normal year-to-year fluctuations in the number of births and the fertility rates, the rates dropped to about half the level of the first year that the clinics opened and collected data. Moreover, an analysis of the students who came in for pregnancy tests in the later years indicates that only a small percentage of students had abortions. This suggests that not only birth rates, but also pregnancy rates have also declined dramatically.

The program staff conducted an analysis of the contraceptive continuation rates using the life-table method. That analysis indicates that the 12-month continuation rate was about 93 percent, indicating that most students continue to use a method of birth control.

Finally, of the adolescents who delivered and kept their babies, close to 87 percent remained in school after delivery. This is a much higher percentage than before the program was implemented, and much higher than national averages. Of those mothers who remained in school, only 1.4 percent had a repeat pregnancy within two years. This figure is also much lower than repeat rates found elsewhere. Thus, this clinic program appears to be very effective.

Conclusions

This evaluation provides evidence for the following:

- The sexuality education programs increased knowledge about sexuality, and this increase tended to be greater among younger participants. Moreover, the students retained this knowledge until they took the second posttests four to six months later.

- The parent/child programs and a few (but not all) of the more comprehensive programs increased the reported clarity of the participants' values. In a few other programs there were substantial increases in this and other areas of self understanding among the program participants, but these increases were paralleled by increases among the control groups.

- Some of the longer programs may have prevented the attitudes of participants from becoming increasingly more liberal toward premarital sex. Young people throughout the country tend to become more permissive toward premarital sex as they grow older. While the control groups became more permissive, the participants in the longer, more comprehensive programs did not. This suggests the programs had a conservative effect upon their attitudes.

- None of the programs had any significant impact upon reported attitudes toward the importance of birth control. The mean scores of both experimental and control students were quite high even before the

courses, but there remained room for improvement, and both the program participants and the control students demonstrated small increases over time.

- Some, but not all, of the longer programs also increased the students' opposition to the use of pressure and force in social and sexual relations.

- Most of the longer programs had no measurable impact upon existing attitudes toward gender roles, sexuality in life, or the importance of the family.

- None of the longer programs significantly affected participants' self esteem, satisfaction with sexuality, and satisfaction with social relationships. Among both experimental and control groups, there was considerable stability in these measures.

- Almost none of the programs had any measurable impact upon reported social decisionmaking, sexual decisionmaking, communication, assertiveness, or birth control assertiveness skills as they are practiced in everyday life.

- Most of the programs did not have any consistent impact upon comfort with most social activities, communication with others about sexuality, or use of birth control.

- In contrast with other programs, the parent/child programs did increase the comfort of the parents and to a lesser extent increased the comfort of the children talking about sex. The course for younger children was more successful in increasing comfort than the course for older children.

- Most programs had no measurable impact upon the reported frequency of conversations about either sex or birth control with parents, friends, or boyfriends and girlfriends.

- In contrast to the other programs, the parent/child program for younger children did significantly increase reported communication between parents and children, even four months after the program ended. The parent/child program for older children also had substantial increases, but the increases were not statistically significant because of small sample sizes.

- The programs did not significantly increase or decrease the amount of reported sexual activity. They had no impact upon the proportions of participants who had ever had sex or who had sex the previous month. They also had no impact upon the frequency of sexual behavior during the previous month.

- The non-clinic programs did not perceptibly affect the participants' reported use of birth control. In particular, they did not affect the frequency of sexual activity without birth control, with poor methods of birth control, or with effective methods of birth control.

- None of the non-clinic programs had any measurable impact upon pregnancy.

- The education/clinic approach increased the use of birth control and substantially reduced births. It also increased the proportion of pregnant adolescents who remained in school, and decreased the number of repeat pregnancies among them.

These findings are quite clear and striking. The programs which were primarily educational had an impact mostly upon knowledge and slightly upon attitudes. The only programs that had a clear impact upon behavior were those that clearly provided a directly relevant experiential component -- the parent/child program actually started the parents and their children communicating right there in the classroom, and the clinic directly helped the students obtain more effective types of birth control. In other words, these two programs did not just talk about desired behavior; they directly facilitated the desired behavior.

These findings are quite consistent with the review of the literature. Many studies of sexuality education have found that programs increase knowledge; a few studies found that programs affected attitudes, while a few others found no effect; a few studies found that programs had no impact on the amount of sexual behavior; and a few studies found that education/clinic combinations increased the use of birth control and reduced pregnancies. Thus, these previous studies using both similar and different methods produced conclusions similar to those in this research.

The conclusions of this research do differ somewhat from those of Zelnik and Kim (1982). Their analysis of their national survey data indicates that sexuality education programs increase the use of birth control and reduce pregnancies. Their data are based upon large sample sizes and may better measure longer term effects, but unfortunately, their data do not provide much information about the characteristics of the sexuality education programs in which respondents may have participated. Further, their data cannot demonstrate causality.

Our findings are also remarkably consistent with studies of other kinds of educational programs. They typically find that schools can effectively increase knowledge, but have little impact upon most attitudes, psychological attributes, and behavior. Our findings are also consistent with studies showing the greater impact on behavior of programs providing experiences directly related to the behavior than of programs employing more didactic approaches.

From research in other areas and from our own practical experience, we know that changing attitudes, self esteem, and behavior is very difficult. Realistically, we should not expect 6 hours in class, or even 75 hours, to change attitudes and behavior patterns based upon strong emotional needs, strong sexual desires, years of communication or noncommunication with parents, thousands of hours of television and other media exposure, and thousands of hours of interaction with peers.

It is important to consider the extent to which the findings in this report can be generalized to other sexuality education programs. These

findings are based upon programs developed by nine different organizations, some of which had multiple components or approaches. This is a rather small number of programs, and obviously they were not randomly selected.

However, they were among the best programs that we could find at the time, and some of them have excellent national reputations. Moreover, we provided considerable resources -- opportunities for training at different places, physical materials and resources, and the benefit of ongoing evaluations. Thus, it does not seem likely that other similar programs would be much more successful.

Generalizing from these programs to other less similar educational approaches is more risky. However, these programs represent a variety of different approaches that were considered by many professionals in the field to represent the most promising approaches. Again the pattern was clear -- the educational approaches that only talked about behavior primarily affected knowledge; the programs that focused directly upon behavior changed behavior.

Some sexuality educators who have reviewed these findings have been tempted to explain the more limited success of the educational approaches by finding fault with some particular aspect of one or more programs and arguing that that aspect was the problem. Some argue that programs do not sufficiently stress abstinence and consequently do not prevent sexual activity and pregnancy. Others argue the reverse -- that programs are too conservative, do not accept the adolescents' sexuality, increase guilt, decrease the adolescents' acceptance that they are or will be sexually active, and thereby reduce the use of birth control. Others argue that there should be greater focus upon decisionmaking; others that there should be greater focus on role playing. Others argue for communication; still others for communication between actual boyfriends or girlfriends.

It is impossible here to prove whether these or other changes would make the programs more effective. However, the data from the programs evaluated herein, and the general history of educational solutions to adolescent problems indicate that educational approaches alone will not substantially change behavior, while programs that provide experiences directly related to the behavioral goal can change the behavior.

The conclusions of this research have serious implications for educators. Specifically, they suggest (1) that existing programs should have less ambitious goals, or (2) that if educators want programs to affect behavior, they may need to focus upon a particular goal and design both the structure and content of the program to achieve that goal. For example, the parent/child program and the school clinic were specifically designed to affect parent/child communication and the use of contraception, respectively, and they were successful.

The failure of most of the programs to affect behavior at the end of the program or four to five months later does not mean that sexuality education should be abandoned. On the contrary, there remain good reasons to maintain and further develop sexuality education.

First, many students in the programs we evaluated claimed that these programs had positive effects upon them. In the class evaluations, students

expressed numerically many positive results. In personal interviews and group discussions, they verbally expressed particular insights or other particular ways in which the class had helped them. Second, many parents also support the programs and believe they are effective. Third, as noted above, the pretest/posttest data did demonstrate a few positive effects, such as increasing knowledge. Finally, through careful development and evaluation, sexuality education may improve and subsequently have greater impact. It is still a young field generating many different ideas and innovations.

In sum, to the extent that one can generalize from these nine programs to others, this evaluation indicates that if the goal is to increase knowledge, both short and long-term sexuality education programs can do that. If the goal is to increase clarity of values, more comprehensive programs may be able to have a small impact. If the goal is to increase parent/child communication, parent/child programs which bring parents and their children together and start them communicating can succeed. If the goal is to reduce unintended teenage pregnancy, an education/clinic combination can dramatically succeed.

References

Abramowitz S, Tenenbaum E, Deal T, Stackhouse E: High School '77: A Survey of Public Secondary School Principals. Washington D.C., National Institute of Education, 1978.

Brann E, Edwards L, Calicott T, Story E, Berg P, Mahoney J, Stine J, Hixson A: Strategies for the prevention of pregnancy in adolescents. Advances in Planned Parenthood, 14(2): 68-76, 1979.

Cooper L: The Effectiveness of Family Life Education in Twelve Secondary School Districts. Santa Cruz, Calif: Network Publications, 1983.

Dickens H, Mudd E, Huggins G: Teenagers, contraception, and pregnancy. Journal of Marriage and Family Counseling, 1(2): 175-181, April, 1975.

Gallup G: Teens want right to obtain birth control devices. Gallup Youth Survey. Princeton, N. J., news release, Sept 27, 1980.

Gallup G: Reflects epidemic of teenage pregnancies: Growing number of Americans favor discussions of sex in classrooms. Princeton, N. J., The Gallup Poll, news release, Jan 23, 1978.

Gallup G: Teens claim sex education classes helpful. Gallup Youth Survey, news release, Princeton, N.J., October 4, 1978.

Hottois J, Milner N: The Sex Education Controversy. Lexington, Mass., D.C. Heath Company, 1975.

Kirby D, Scales P: An analysis of state guidelines for sex education instruction in public schools. Family Relations, 1981, 229-237.

Norman J, Harris M: The Private Life of the American Teenager. New York: Rawson Wade, 1981.

Orr M: Sex education and contraceptive education in U.S. public high schools. Family Planning Perspectives, 14 (6): 304-313, November/December, 1982.

Smith, T: A Compendium of Trends on General Social Survey Questions. Chicago: National Opinion Research Center, 1980 (NORC Report No. 129).

Sonenstein F, Pittman K: Sex education in public schools: A look at the big U.S. cities. Paper presented to the annual meeting of the National Council on Family Relations, Washington, D.C., 1982.

Spanier G: Sex education and premarital sexual behavior among American college students. Adolescence, 13(52): 659-674, Winter, 1978.

Wiechmann G, Ellis A: A study of the effects of sex education on premarital petting and coital behavior. The Family Coordinator, 18: 231-234, July, 1969.

Zabin L, Streett R, Hardy J: Research and evaluation in a university, clinic and school-based adolescent pregnancy prevention program. Paper delivered to the American Public Health Association meetings, Dallas, 1983.

Zelnik M: Sex education and knowledge of pregnancy risk among U.S. teenage women. Family Planning Perspectives, 11(6), 355-357, 1979.

Zelnik M, Kim Y: Sex education and its association with teenage sexual activity, pregnancy, and contraceptive use. Family Planning Perspectives, 14(3): 117-126, May/June, 1982.